Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

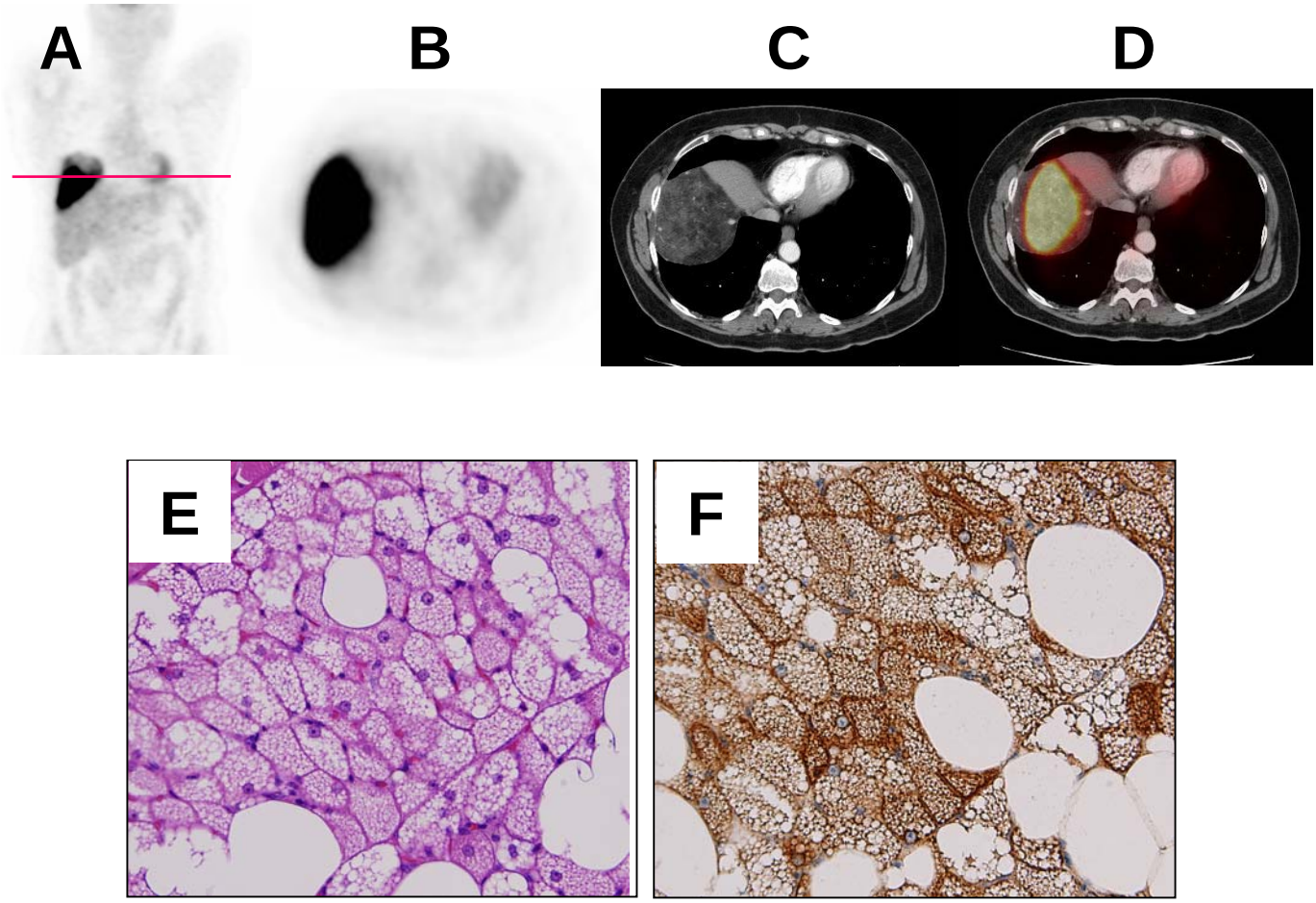
Supplement to: Cypess AM, Lehman S, Williams G, et al. Identification and physiologic role of brown adipose tissue in human adults. N Engl J Med 2009;360:xxxx-xx.

Supplementary Table 1. Clinical characteristics of BAT-negative and BAT-positive patients.

Characteristic	BAT negative (N=204)	BAT positive (N=106)
Female – no. (%)	96 (47.1)	76 (71.7)
Age – years	59.7 ± 14.8	49.8 ± 16.3
Age – tertiles		
<50 y – no. (%)	52 (25.5)	51 (48.1)
50-64 y – no. (%)	67 (32.8)	36 (34.0)
>64 y – no. (%)	85 (41.7)	19 (17.9)
BMI – kg/m^2	26.6 ± 5.1	25.7 ± 5.2
BMI – tertiles		
<23.6 kg/m^2 – no. (%)	62 (30.4)	42 (39.6)
23.6-27.8 kg/m^2 – no. (%)	66 (32.4)	36 (34.0)
>27.8 kg/m^2 – no. (%)	76 (37.2)	28 (26.4)
Glucose – mg/dl	104.0 ± 27	98.4 ± 21
Glucose – tertiles		
<93 mg/dL – no. (%)	63 (30.9)	40 (37.7)
93-103 mg/dL – no. (%)*	65 (31.9)	39 (36.8)
>103 mg/dL – no. (%)	76 (37.3)	27 (25.5)
Beta-blockers use – no. (%)†	47 (24.5)	2 (2.0)
Benzodiazepine use – no. (%)†	19 (9.9)	20 (19.8)
Oncologic diagnosis		
No cancer – no. (%)	14 (6.9)	8 (7.6)
Lymphoma – no. (%)	82 (40.2)	49 (46.2)
Other cancers – no. (%)	108 (52.9)	49 (46.2)
Smoking History‡		
Never – no. (%)	85 (46.7)	64 (64.0)
Former – no. (%)	72 (39.6)	25 (25.0)
Current – no. (%)	25 (13.7)	11 (11.0)

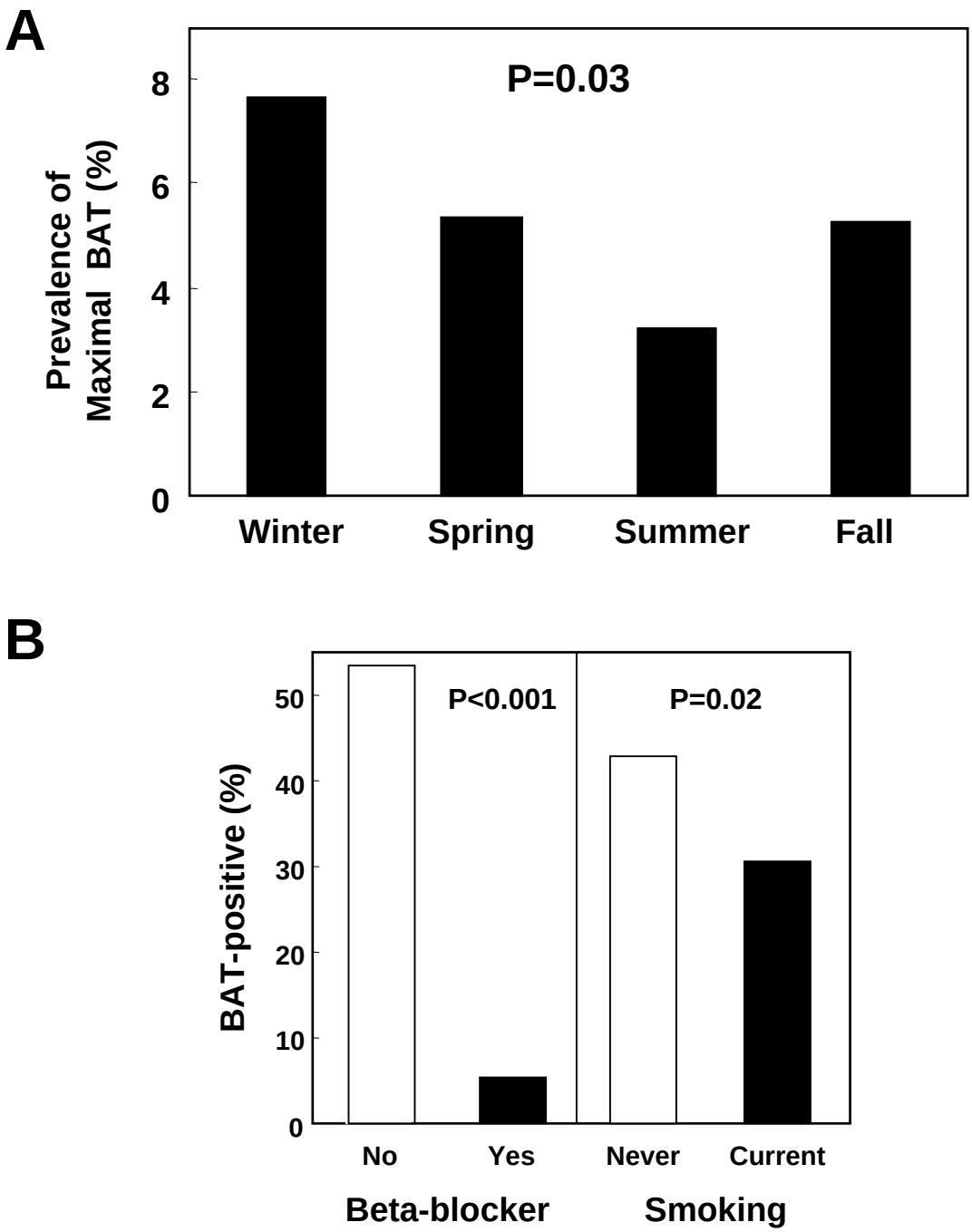
*Includes 1 BAT-positive and 3 BAT-negative subjects who had missing glucose values.
†Data on beta-blocker and benzodiazepine use were missing for 5 BAT-positive and 12 BAT-negative patients.
‡Data on smoking history were missing for 6 BAT-positive and 22 BAT-negative subjects.

Supplementary Figure 1



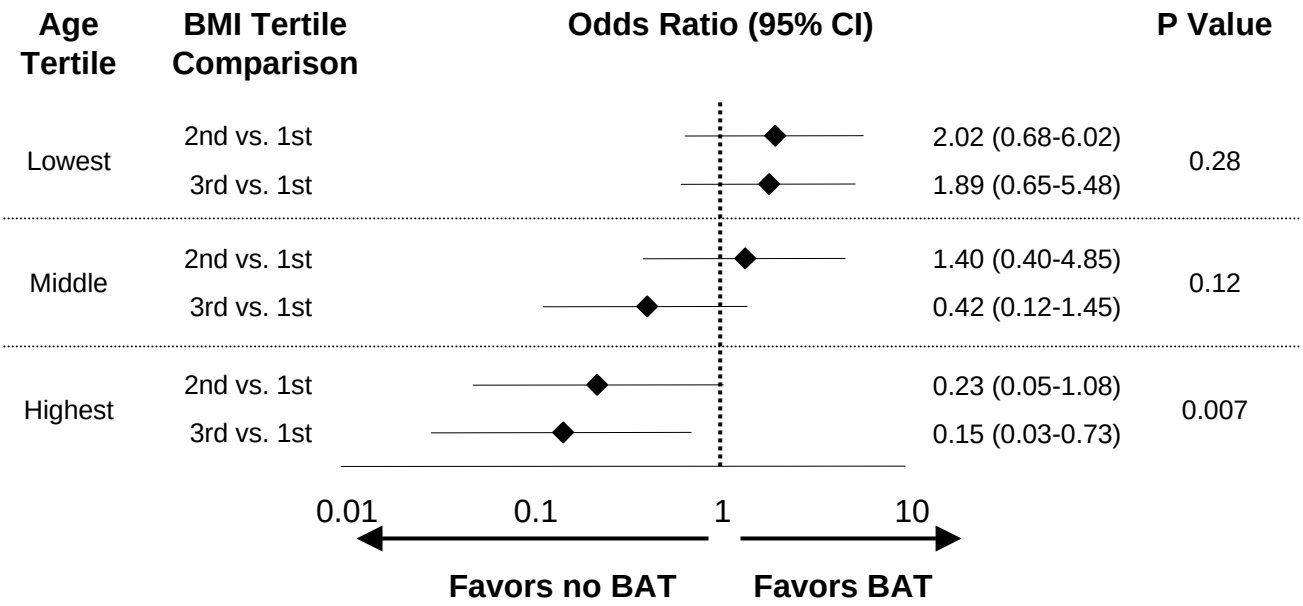
Supplementary Figure 1. Immunohistochemistry demonstrating that ^{18}F-FDG avid adipose tissue is BAT. Panels A-F are from a 67 year-old woman with a hibernoma. Panel A shows the attenuation-corrected coronal PET image. Panels B, C, and D, show, respectively, the axial attenuation-corrected PET image, axial CT image, and fused PET/CT. The FDG-avid mass was resected and studied histologically with Panel E showing hematoxylin and eosin staining and Panel F showing antibody (1:50) to UCP-1, the defining protein of BAT, counterstained with hematoxylin. Both Panels E and F are at 400X magnification.

Supplementary Figure 2



Supplementary Figure 2. Temperature dependence of maximal BAT and relationship between BAT expression and pharmacologic predictors. In Panel A the dates upon which the BAT-positive patients had maximal BAT activity were determined and the prevalence of maximal BAT per season when compared with the entire population of 1,972 scanned patients using the chi-square goodness of fit test. Panel B shows the percentage of BAT-positive patients in the absence (empty) or presence (filled) of either daily beta-blocker use (left panel) or smoking history (right panel). Univariate analysis was used to assess the significance of the different percentages by chi-square test with P values shown for each predictor.

Supplementary Figure 3



Supplementary Figure 3. Odds Ratios for the Interaction Between Age and BMI. The nested case-control series of 310 patients was modeled using an additional interaction term between age and BMI, adjusted for sex, age, glucose, type of cancer, smoking, and benzodiazepine and beta-blockers use. The age tertiles were younger than 50 y (lowest), 50 to 64 y (middle), and older than 64 y (highest). The BMI tertiles were less than 23.6 kg/m^2 (lowest), 23.7 to 27.8 kg/m^2 (middle), and greater than 27.8 kg/m^2 (highest). Shown are the odds ratios and 95% CI for each comparison and the P values for each age tertile when calculated by chi-square test for linear trend. The P value for the overall interaction between age and BMI was 0.008.